Project Design Features

Aesthetics

The following measures would be implemented into the design and construction of CIP projects to minimize potential effects on aesthetics to neighborhoods surrounding the CIP projects:

- Demolition debris will be removed in a timely manner for off-site disposal.
- Tree and vegetation removal will be limited to those depicted on construction drawings.
- Construction lighting will be shielded or directed away from adjacent residences.
- All roadway features (signs, pavement delineation, roadway surfaces, etc) and structures within state and private rights-of-way will be protected, maintained in a temporary condition, or restored.
- Disturbed areas will be restored following construction consistent with original site conditions and surrounding vegetation. If removed vegetation included invasive plant species, the restored area shall be revegetated with a mix of native, non-invasive plants that are compatible with the surrounding setting. If necessary, a temporary irrigation system will be installed and maintained by CMWD or the City, or watering trucks will be used at a frequency to be determined by CMWD or the City to maintain successful plant growth. For proposed CIP pipeline projects that would require trenching or that would require the temporary removal of concrete or asphalt, the disturbed area will be repaved to be consistent with the existing material.
- Above-ground components such as pump stations will be designed with exterior fencing, paint, and vegetative screening to reduce aesthetic impacts in visually sensitive areas.

Air Quality

The following BMPs would be implemented to minimize fugitive dust emissions and other criteria pollutant emissions during construction of CIP projects:

- Water or dust control agents will be applied to active grading areas, unpaved surfaces, and dirt stockpiles as necessary to prevent or suppress particulate matter from becoming airborne. All soil to be stockpiled over 30 days will be protected with a secure tarp or tackifiers to prevent windblown dust.
- Covering/tarping will occur on all vehicles hauling dirt or spoils on public roadways unless additional moisture is added to prevent material blow-off during transport.
- Dirt and debris spilled onto paved surfaces at the project site and on the adjacent roadway will be swept or vacuumed and disposed of at the end of each workday to reduce resuspension of particulate matter caused by vehicle movement. During periods of soil export or import, when there are more than six trips per hour, dirt removal from paved surfaces will be done at least twice daily.
- Disturbed areas will be revegetated as soon as work in the area is complete.
- Electrical power will be supplied from commercial power supply wherever feasible, to avoid or minimize the use of engine-driven generators.
- Air filters on construction equipment engines will be maintained in clean condition according to manufacturers' specifications.

- The construction contractor will comply with an approved traffic control plan to reduce non-project traffic congestion impacts. Methods to reduce construction interference with existing traffic and the prevention of truck queuing around local sensitive receptors will be incorporated into this plan.
- Staging areas for construction equipment will be located as far as practicable from residences.
- Trucks and equipment will not idle for more than 15 minutes when not in service.

Biological Resources

The BMPs identified in the Carlsbad HMP would be implemented during the construction and operation of CIP projects to minimize potential effects on biological resources:

- Use BMPs to prevent pollution generated by construction activities from entering surface and groundwater. BMPs will also ensure that non-stormwater discharges are not discharged into stormwater drainage systems. BMPs may include:
  - Regulatory measures such as erosion control ordinances and floodplain restrictions.
  - Structural measures such as detention or retention basins, filters, weirs, check dams, or drainage diversions.
  - Vegetative controls that reduce volume and accomplish pollutant removal by a combination of filtration, sedimentation, and biological uptake.
  - Maintenance of pump stations, sewer lines, and stormwater conveyance systems.
  - Cultural practices such as restrictions on pesticide and fertilizer applications, storage or disposal of toxic chemicals, or washing of vehicles or equipment in areas that can drain to the estuary.
  - Public education programs that educate residences about proper disposal of oil or chemicals and that provide opportunities (e.g. designated locations) for residents to properly dispose of contaminants.
- For clearing, grading, and other construction activities within the watershed, ensure that proper irrigation and stormwater runoff mitigation measures are employed to reduce sediment loads and to prevent contamination from pesticide, fertilizers, petroleum products, and other toxic substances.
- Restrict or limit recreational or other activities within 200 feet of important forage, breeding, and roosting areas.
- Require attenuation measures for activities that generate noise levels greater than 60 dBA if occurring within 200 feet of important breeding habitat during the nesting season.
- Restrict construction hours to daytime hours that do not require the use of construction lighting.

Cultural and Paleontological Resources

The following procedure for unintentional disturbance of cultural resources will be implemented to minimize impacts to previously unknown archaeological resources during construction of CIP projects:

- If subsurface cultural resources are encountered during CIP project construction, or if evidence of an archaeological site or other suspected cultural resources are encountered, all ground-disturbing activity will cease within 100 feet of the resource. A qualified archaeologist will be retained by the City or CMWD to assess the find, and to determine whether the resource requires further study. The assessment shall include consultation with the NAHC or Native American Tribe. Any previously undiscovered resources found during construction will be recorded on appropriate Department of Parks and Recreation (DPR) 523 forms and evaluated by a qualified archaeologist retained by the City or CMWD for significance under all applicable regulatory criteria. No further grading will occur in the area of the discovery until the City and CMWD approves the measures to protect the resources. Any archaeological artifacts recovered as a result of mitigation will be donated to a qualified scientific institution approved by the City or CMWD where they would be afforded long-term preservation to allow future scientific study.

Geology and Soils

The following measures will be implemented into the construction and operation of CIP projects to minimize potential risks from geologic and soil hazards:

- A site-specific geotechnical investigation will be completed during the engineering and design of each CIP project that would require excavation in previously undisturbed soil, which would determine the risk to the project associated with fault rupture, groundshaking, liquefaction, landslides, and expansive soils. The geotechnical investigations will describe site-specific conditions and make recommendations that will be incorporated into the construction specifications for the CIP project. Recommendations may include, but would not be limited to the following typical measures:
  - Over-excavate unsuitable materials and replace them with engineered fill.
  - Remove loose, unconsolidated soils and replace with properly compacted fill soils, or apply other design stabilization features.
  - For thicker deposits, implement an applicable compaction technique such as dynamic compaction or compaction piles.
  - Perform in-situ densification of soils or other alterations to the ground characteristics.
  - For landslides, implement applicable techniques such as stabilization; remedial grading and removal of landslide debris; or avoidance.

Hazards and Hazardous Materials

The following measures would be implemented into the construction and operation of CIP projects to minimize potential effects related to hazards and hazardous materials:

- Fire safety information will be disseminated to construction crews during regular safety meetings. Fire management techniques will be applied during project construction as deemed necessary by the lead agency and depending on-site vegetation and vegetation of surrounding areas.

- A brush management plan will be incorporated during project construction by the City, CMWD, or a contractor, as necessary. Construction within areas of dense foliage during dry conditions will be avoided, when feasible.
- In cases where avoidance is not feasible, necessary brush fire prevention and management practices will be incorporated. Specifics of the brush management program will be determined as site plans for the project are finalized.
- A site-specific hazardous materials record search for the locations and type of hazardous materials for the site will be done and, if required, a site assessment will be conducted during final design of individual CIP project components.
- In order to ensure that the project does not cause a significant hazard to the public or the environment through release of or transport of hazardous materials during construction and operation, the City or its contractors, and the CMWD, will implement the following project design features:
  - Pipelines of the project components would be constructed with polyvinyl chloride pipe, or other material, which is highly resistant to rupture.
  - Pump stations included as part of the project, and stations that will service the proposed project will be designed or constructed with safety features, including an emergency generator on site in case of electrical failure, and sufficient sewage detainment capacity in the event of generator and/or pump mechanism failure to allow time for repair and/or emergency conveyance of the sewage. Portable emergency generators may be used for pump stations that cannot be equipped with an on-site generator. Should emergency leaks or spills occur, the Sewer Prevention and Response Plan for both the City and the CMWD will be implemented.

Hydrology and Water Quality

The following measures would be implemented into the construction and operation of CIP projects to minimize potential effects to hydrology and water quality:

- A construction spill contingency plan will be prepared for new facilities in accordance with County Department of Environmental Health regulations and retained on site by the construction manager. If soil is contaminated by a spill, the soil will be properly removed and transported to a legal disposal site.
- If groundwater is encountered and dewatering is required, then the groundwater will be disposed of by pumping to the sanitary sewer system or discharging to the storm drain system according to the conditions of the appropriate discharge permit.
- The lead agencies will consider using pervious or semi-pervious surfaces where possible to reduce the increase in the velocity of peak flows.
- For all potential impacts to natural drainages (i.e., pre-development hydrology), BMPs on site will be used to fully mitigate for project-related contaminants in the surface flows prior to their discharge to streams.
- For all trenchless construction activities, the City or CMWD will implement the following methods recommended by the CDFG and USFWS to prevent water pollution:
  - Implementation of the following techniques to reduce potential for hydrofracture and inadvertent returns that could pollute nearby water:

- Sufficient earth cover will be used to increase resistance to hydrofracture.
- An adequately dense drilling fluid will be used to avoid travel of drilling fluid in porous sands.
- The bore will be conducted in a manner that avoids collapse.
- Borehole pressure will be maintained at levels low enough to avoid hydro fracture.
- Reaming and pullback rates will be maintained at rates slow enough to avoid over-pressurization of the bore.
- The surface above the vicinity of the drill head will be visually monitored for surface evidence of hydrofracture.
- Drilling methods will be modified to suit site conditions such that hydrofracture does not occur.

– Hydrofractures will be cleaned immediately after they occur. Necessary response equipment will be readily accessible and in good working order.

– Hydrofracture reporting and cleanup information will be disseminated to construction crews during regular safety meetings. All field personnel will understand their responsibility for timely reporting of hydrofractures.

Noise

The following measures would be implemented into the construction and operation of CIP projects to minimize noise effect to surrounding neighborhoods:

- Heavy equipment will be repaired at sites as far as practical from nearby residences.
- Construction equipment, including vehicles, generators and compressors, will be maintained in proper operating condition and will be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, acoustical lagging, and/or engine enclosures).
- Construction work, including on-site equipment maintenance and repair, will be limited to the hours specified in the noise ordinance of the affected jurisdiction.
- Electrical power will be supplied from commercial power supply, wherever feasible, in order to avoid or minimize the use of engine-driven generators.
- Staging areas for construction equipment will be located as far as practicable from residences.
- Operating equipment will be designed to comply with all applicable local, state, and federal noise regulations.
- If lighted traffic control devices are to be located within 500 feet of residences, the devices will be powered by batteries, solar power, or similar sources, and not by an internal combustion engine.
- The City/CMWD or their construction contractors will provide advance notice, between two and four weeks prior to construction, by mail to all residents or property owners within 300 feet of the alignment. For projects that would require pile driving or blasting, noticing will be provided to all residents or property owners within 600 feet of the alignment. The announcement will state specifically where and when construction will occur in the area. If construction delays of more than 7 days occur, an additional notice will be made, either in person or by mail.

- The City/CMWD will identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise and other construction disturbance. The City/CMWD will also establish a program for receiving questions or complaints during construction and develop procedures for responding to callers. Procedures for reaching the public liaison officer via telephone or in person will be included in notices distributed to the public in accordance with the information above.
- For any construction activities which include blasting, a qualified blasting consultant and geotechnical consultant will prepare all required blasting plans and monitor all blasting activities in conformance with the Standards of the California Department of Mines.

Transportation/Traffic

The following measures would be implemented during construction of CIP projects to minimize traffic effects to surrounding neighborhoods:

- Prior to construction, the City will prepare a traffic control plan and coordinate with the cities of Oceanside, Vista, and San Marcos to address traffic during construction of project components within the public right-of-ways of the affected jurisdiction(s), including bicycle, pedestrian, and transit facilities. The traffic control plan will include signage and flagmen when necessary to allow the heavy equipment to utilize residential streets. The traffic control plan will also include provisions for coordinating with local school hours and emergency service providers regarding construction times.